

Utah's Strategic Information Technology Plan

“Making IT Happen!”

Version 3.0

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Introduction

Making IT Happen!, Utah's state strategic plan for information technology, provides a high-level road map for the use, management, and development of information technology resources in state government. The plan offers an overall purpose and mission for information technology in the state as defined by five broad guiding principles. The plan outlines a blueprint for the continued deployment of information technology resources in the state through a set strategic goals and objectives. The strategic goals are further defined by a set of measurable methods and strategies for achieving each of the broader objectives.

In 1993, through the creation of the "Electronic Highway" task force, Governor Michael Leavitt set forth his vision for moving Utah State government on-line. He also outlined several principles for managing information technology as a strategic state asset. In those principles the Governor emphasized that for information to be useful and valuable to the citizen, and to state workers, it must be easy to access, cost-effectively managed, customer-driven, private, secure and shared. In March of 1999, the Utah Legislature passed the Digital State Act, defining key government services and transactions that should be made available via the Internet by July of 2002.

The State's Chief Information Officer (CIO) works closely with a sub-group of the Governor's Cabinet to refine and update the State Strategic IT Plan annually. This version of the plan incorporates many of the items identified in previous plans, as well as updated material, goals, and strategies.

Utah's Strategic Information Technology Plan calls for a continued and ongoing focus on "e-government" initiatives and the moving government services and information online. It calls for a closer integration of data between agencies and levels of government. It recognizes the need to improve our internal business processes through technology, and the importance of maintaining a strong and well-qualified IT workforce. We expect that many of the goals outlined in the plan can be achieved in large part over the next two to three years. A common sense of purpose and shared understanding of focus and priorities is essential to accomplishing the plan's strategic goals. We anticipate, as the goals of the plan are achieved, that our citizen customers will be the direct beneficiaries.

Information technology, if used in a well planned and executed way, holds great promise to reform, redirect and revitalize, while inspiring a sense of public confidence and trust in our government. This document reviews "where we are", defines "where we are going" and outlines strategies for "how to get there."

What's in the Plan?

Utah's Information Technology Strategic Plan first lays out some basic assumptions and values, which will drive the State's information technology planning efforts into the next century.

Flowing from these core values are a set of guiding principles which define the mission and purpose of information technology in our state government. These principles then guide the creation of a set of strategic goals- some of which are stated broadly and some of which are more specific. This is based to some extent on their priority and the sense of urgency, which is driving their implementation. Specific strategies have been outlined for each of the goals, as well as a set of benchmarks to gauge our progress towards the accomplishment of that goal. The extent of the detail will vary as we move forward. This plan, particularly in its digital or electronic form, is intended to be a “living document”-- continuously updated to reflect changing needs and environment.

The plan also outlines the current technology environment in the state, defining current state strengths and weaknesses, and offering an analysis of current trends in information technology. It is our intent that this “snapshot” view of the technology landscape and the state’s current efforts toward effective and efficient deployment of information technology resources be updated on a regular basis. The plan also includes an overview of the State’s IT organizational structure and key IT committees.

Key to the process of developing the strategic plan was an effort to include input from senior executives throughout state agencies, leadership from both the legislature and executive branch, IT management and planners at several levels, users of the state’s information systems, and the general public and private sector industry. Summaries of that input have been included with the plan to help underscore some of the issues and concerns that are being addressed.

In its online version (see www.cio.state.ut.us), this document contains links to expanded information, specific proposals for initiatives, and reference material that will provide guidance in making smart information technology choices.

Information Technology: Enabling Better Government

The State of Utah has been recognized nationally as a leader in the innovative use and deployment of information technology resources. A commitment to shared infrastructure, talented information technology professionals, and leadership and vision from the state’s senior executives have all contributed to past successes. At the same time, the expectations of citizen-customers have continued to increase. Government agencies are being asked to improve service, provide greater flexibility and responsiveness, and serve a larger and fast-growing constituency. Government leaders and the public expect to see decreased costs from the deployment and use of information technology resources.

Adding to the challenge, information technologies are continuing to undergo rapid and profound change. Oftentimes state-of-the-art technology, which an agency has purchased, may become obsolete or antiquated long before the end of its anticipated useful life. As technology changes, the ability for information technology systems from different departments to interact and work as a cohesive whole is compromised.

Meeting the challenge of providing improved service and increased efficiencies in government will require that agencies work together cooperatively, minimize duplication of efforts, increase their sharing of common information technology resources, and foster innovation in the application and deployment of information technology. This plan sets forth the guiding principles and strategic goals that will help the State of Utah meet those challenges. We invite you to accompany us on the journey and hope it will be well worth your effort!

Values Driven Technology Planning

The following values help shape this strategic plan, and provide guidance in the use of information technology in the state:

- ▶ The Governor, the State and its citizens **embrace the use** of information technology (IT) to improve the quality of life for all citizens;
- ▶ State government must provide **reasonable access** to all information which is not classified, and provide processes for individuals and agencies to verify information and correct errors if necessary;
- ▶ IT initiatives must remain **customer focused** and deliver useful, accurate, and timely information and services to those need it;
- ▶ IT decisions must be **cost effective**, and should be evaluated based on cost-benefit analysis, consistent criteria for evaluation, adequate consideration of alternatives, and an identification of needs;
- ▶ IT infrastructure must promote **universal access** to government information and services through reduction of social, economic, and ability barriers, recognizing that citizen awareness and education is crucial to all universal access efforts;
- ▶ IT must be viewed as a **strategic asset**, and should play a key role in re-engineering government processes to increase efficiency and effectiveness;
- ▶ Information technology resources must help to **multiply knowledge**, streamline service, facilitate communications, and provide management information to all knowledge workers throughout the organization.
- ▶ State government encourages **innovation** in the application of information technology.
- ▶ Information must be adequately **secure** and protected to ensure its confidentiality, integrity, and availability, and to prevent, detect, and minimize loss from intentional or accidental hazards.
- ▶ Information and information technology resources must be **shared** where possible, and support an environment of cooperation and collaboration, including the sharing of ideas, resources, and data within and between agencies--unnecessary duplication of information and effort should be eliminated;
- ▶ IT planning efforts must be **strategically aligned** with the Governor's key objectives, departmental business goals, the Governor's Office of Planning and Budget's planning initiatives and the Utah Tomorrow strategic planning process.

Strategic Planning in the State of Utah

Critical to the strategic planning process for information technology is recognition of the broader strategic vision and goals for the state of Utah. Included here, as a framework within which the strategic goals for information technology fit, are the vision, goals, and objectives for the state as a whole.

Utah Tomorrow is the officially recognized strategic plan and strategic planning process for the state of Utah. It defines the following vision statement for Utah:

We the people of Utah, stand at the edge of a new frontier. In a world of rapid economic, social, environmental, and technological change, we confront bold challenges and rich opportunities.

Building upon our diverse cultures, our pioneering spirit, and our belief in the inherent worth of every person, we seek to:

NURTURE a tolerant, just, and compassionate society that honors integrity, values strong families, welcomes diversity, and promotes positive values.

EDUCATE our citizens by providing an environment that supports life-long learning and occupational skills and that enables Utahns of all ages to reach their potential as productive and responsible individuals.

BUILD a statewide economy and infrastructure that supports a broad spectrum of opportunity for all citizens while advancing the standard of living and maintaining a high quality of life.

ENHANCE our local and global environment through prudent development, conservation, and preservation of our natural resources while protecting public health, and preserve our sustainable food and fiber resources.

PROMOTE personal well being by encouraging healthy lifestyles and disease prevention, and by supporting access to quality health care at an affordable cost for all Utahns.

UNDERSTAND our diverse human heritage, nurture and protect Utah's cultural resources, and create opportunities for cultural education and expression.

ENCOURAGE self-sufficiency while helping those with special needs to lead productive, fulfilling lives.

PROTECT our society by supporting a justice system that allows Utahns to enjoy a quality lifestyle consistent with the rights and liberties guaranteed under the United States and Utah Constitutions.

ASSURE open, just, and accountable government.

STRENGTHEN our free enterprise system while providing a reasonable regulatory environment that protects our citizens.

PREPARE ourselves, our state, and our children for the challenges of tomorrow, today.

Also important to the strategic planning process are the business goals that have been continually emphasized by Governor Michael O. Leavitt during his administration:

- Providing world-class education
- Creating quality jobs and a quality business environment
- Improving government services
- Enhancing the quality of life for all Utahns
- Fostering self reliance, and
- Protecting Utah's foundation of community values.

The Governor has also added as long-range goals for the state, to:

- Slow the investment in bricks and mortar;
- Refuel the resettlement of rural Utah;
- Use what we have better;
- Increase individual responsibility and community values;
- Become a generation of planners; and
- Make quality our comparative advantage.

Becoming a Digital State

In January of 1999 the Governor outlined a broad vision for making Utah a “Digital State.” The Governor’s vision calls for:

1. **‘Webtone’-- high-speed Internet access-- available to every community throughout the state.** Promote the availability of affordable, “always on”, high-speed, high-capacity data services and Internet access, and the digital infrastructure to support it, throughout the State. High-speed Internet infrastructure will help enable the delivery of government, medical, and educational services to remote areas electronically.

What do we want to accomplish?

- ▶ Create a digital telecommunications infrastructure that would allow every home, school, and business in Utah the option of accessing affordable, high-speed, high-bandwidth data services.
- ▶ Provide a foundation of access options in libraries, schools, government service centers, etc., for those individuals who cannot access the Internet from home or work.

Why is it important?

- ▶ 10 to 100 times faster access to the Internet and Internet-based commerce and services -
- eliminate the ‘World Wide Wait’.
- ▶ Solving the ‘last mile’ problem is a key to being able to provide high-end services and content to citizens and businesses-- opening up significant new opportunities for connectivity, telecommuting, telemedicine, distance learning, electronic commerce, etc.
- ▶ Rich, multimedia information and fully interactive services need high-speed, high-bandwidth data pipes.
- ▶ Providing this kind of connectivity into every home, school, and business will encourage the type of digital networks and infrastructure needed to ensure economic prosperity in the future.
- ▶ We want this type of access to the information highways of the 21st century to extend into less urban areas of our state, not just the Wasatch Front. It will be key to their economic survival in the new millennium.
- ▶ Creating this type of digital infrastructure will help alleviate other growth-induced problems-- as transactions are able to be conducted readily and securely online, as people are able to work from home, as students can access more educational opportunities online-- it reduces the need for people to get in a car and drive somewhere to conduct those same transactions, thereby reducing traffic congestion, air pollution, and the costs associated with building other infrastructures in our communities. In short, let’s lay down more fiber optics and less asphalt.

How can we accomplish the goal?

- ▶ Encourage and incent telecommunications companies to deploy high-bandwidth, high-speed data services and networks. This is not something the state can build– it has to be built by the private sector.
- ▶ Work to accelerate the availability of high-speed Internet technologies like xDSL, cable-modems, and wireless data services.
- ▶ Help foster cooperation and partnership opportunities between government, industry, and telecommunications providers to accelerate build-out of digital infrastructure and ensure that these networks reach into more remote and rural areas of our state.

2. Education: ‘A college in every kitchen’-- the equivalent of a college level education in distance learning courses and services accessible online to every home and student.

What do we want to accomplish?

- ▶ Have available online content, curriculum and services needed for a complete community college level education, including complete degree programs.
- ▶ Bring more of the home into the school, and more of the school into the home. Ensure availability of online services– such as registration, progress reporting, video-conferencing, etc.-- that promote increased connectivity and interaction between teachers, students, and parents.
- ▶ Enhance the digital network infrastructure needed to deliver integrated voice, video, and data into our schools and homes.

Why is it important?

- ▶ Technology can play a key role in increasing the quality of education without dramatically increasing the cost of education.
- ▶ There is nothing that Internet-based technologies are better at than fostering the sharing and communication of information– certainly a major component of education.
- ▶ Distance learning technologies will extend world-class educational opportunities to people that might otherwise struggle to obtain them– such as in remote rural areas or when they are unable because of work or schedules to participate in more traditional education opportunities.

How can accomplish the goal?

- ▶ Continue providing leadership and resources to important distance learning initiatives, such as Western Governor’s University, the Utah Electronic Community College, and the Utah Electronic High School.
- ▶ Coordinate the development on online content and curriculum by state educational institutions, and facilitate the shared use of these resources.

- ▶ Provide ongoing funding needed to deliver rich multimedia online content to homes and schools, including support for integrating the voice, video, and data needed to provide fully interactive educational content over the Internet.
- ▶ Provide needed funds to convert public television broadcast networks to digital television as required by the Federal Communications Commission.

3. Economic Development: a ‘Digital Main Street’ for every city and community–
wired and ready to help businesses and citizens participate in the new digital economy.

What do we want to accomplish?

- ▶ Establish a ‘Chamber of Electronic Commerce’ in every community-- provide the necessary resources, training, and services to allow our businesses and industries to effectively compete in the ‘digital economy’.
- ▶ Ensure easy access by citizens and businesses to secure online financial transactions and opportunities to buy and sell goods and services over the Web.

Why is it important?

- ▶ Ability to compete in the digital economy will be a key to economic success for our businesses, industries, and our state in the 21st century.
- ▶ World will be reaching in to our consumers-- we need to make sure we are making the world our marketplace as well.
- ▶ Importance of the ‘E-economy’ – biggest impact of revolutionary new digital technologies and connectivity will be on our markets. It is critical that businesses in our state be able to participate in those new and changing markets.

How can we accomplish this goal?

- ▶ Local and state government organizations can play a role in sharing information, providing training, aggregating demand, identifying opportunities, and securing educational resources.
- ▶ Ensure state and community economic development resources are adequately focused on this issue.
- ▶ Promote the development of community efforts and private/public partnerships to host online directories of businesses, goods, services, and resources in the community. This should include the development of a state portal for business-to-business commerce within the State, facilitating the development of online trading communities for Utah-based firms.
- ▶ Use the resources of SmartUtah and the Governor’s Rural Partnership to bring additional training and information about the Internet and technology opportunities to rural communities.

4. Government Services: An ‘online smorgasbord’ of state and local government services -- delivered electronically and universally accessible to constituents through a variety of channels: telephone, Internet, libraries, public kiosks or service bureaus, etc.

What do we want to accomplish?

- ▶ Make available secure electronic transactions with state government-- online filing, applications, renewals, licensing, permits, registrations, and searches for information.
- ▶ Ensure government is interacting with its suppliers electronically to reduce cost of transactions and improve efficiencies.
- ▶ Eliminate the paper-- conduct both internal and external government processes online and reduce the paperwork and paper-based transactions in government processes.

Why is it important?

- ▶ Increase efficiency of government operations
- ▶ Increase level of customer service from government-- allow access to online services 24 hours a day, every day of the year.
- ▶ Reduce cost and effort required for citizens and businesses to interact with state and local governments.

How can we accomplish this goal?

- ▶ Require online delivery of key government services by 2002.
- ▶ Harness private sector experience, innovation, and resources in applying electronic commerce technologies to government transactions.
- ▶ Focus additional effort and resources on making the state's web site a customer-oriented portal to government services and information.
- ▶ Move state procurement and purchasing systems to electronic transactions.
- ▶ Develop a secure state intranet to enable moving internal processes online.

Progress Towards ‘Digital State’ Goals

The following report provides a snapshot, as of April 2000, of some of the progress that has been made to date in achieving the Governor’s vision of a ‘Digital State’ as outlined above:

High-Speed, High-Capacity More Affordable Access For Citizens and Businesses Has Arrived Along the Wasatch Front, But Rural Areas Still Lag

Significant investments have led to increased competition in high-speed, high-capacity access for business and residential customers along the Wasatch Front, which should result in more affordable service costs to consumers.

Telecommunications providers indicate that high-speed, high-capacity Internet services are now available to about 80% of the consumers in Salt Lake County, and nearly 70% of consumers along the Wasatch Front (Ogden to Provo).

About 360,000 homes (55% of households) in Utah now have the capacity to subscribe to these high-speed digital services. That is an **increase of 169%** in availability of these types of services for citizens of the state in the last twelve months.

Pricing for these high-speed services range from \$40/month to \$225/month, for bandwidth ranging from 144 kbps to more than a megabyte per second (1,000 K bytes per second). In many cases bandwidth of 50 to 100 times the speed of a dial-up modem is available in this price range. Technologies include Digital Subscriber Line (DSL), digital cable modem services, direct high-speed fiber-based networks and the latest entry, wireless technologies.

Providers report that nearly all-residential and business consumers along the Wasatch Front will have the option of obtaining ‘webtone’, or high-speed, broadband, data services by the end of the year 2000.

Less promising, but equally important is the deployment of the same high-speed data services in rural areas. Target communities likely include larger population centers such as St. George and Logan, but it is not clear whether these services will also reach smaller, less populated areas of the state. Few installations exist to date. Continued focus is needed to improve cooperation between state and local governments and the telecommunications industry. Proposals supported by the Governor and the Legislature which tie the use of interstate highway rights-of-way by telecommunications providers to reciprocal agreements to deploy affordable broadband services in rural areas are under study. While the program is too new to evaluate its effectiveness, the hope is that we will begin to see real benefits in the deployment of high-speed infrastructure in rural Utah from this program during the coming year.

Getting Educated Online

Not only do citizens and businesses need help in the “how to’s” of getting online, but soon the need arises to get new or update current skills by enrolling in online educational institutions. The State continues to make excellent progress in making quality educational content available over the Internet to students. The Western Governor’s University, the Electronic Community College, the Electronic High School, and the Utah Education Network, colleges and universities, as well as other State and local educational organizations, continue to make more educational content available online. Colleges and universities also are offering students the ability to use the web to register for classes, get schedule information, and perform other administrative functions.

Also, many districts and institutions now offer online access to grades, progress reports, calendars, and registration information. Of 40 school districts in the State, 32% of them report that they now have at least some capability allowing parents and students access to grades on the Internet. 82% of the districts report that at least some of their teachers can be accessed via e-mail, and 90% report that they have school calendars and other resource information posted online.

Digital Main Street Initiatives Promote Economic Development

A partnership between the Department of Community and Economic Development (DCED) and the CIO’s office will result in the creation of a ‘Utah Business Resource Network.’ A portal containing a comprehensive online directory of Utah businesses will help market products and services to customers worldwide over the Internet. This initiative aimed particularly at small businesses will enable electronic commerce through the establishment of electronic marketplaces. A significant amount of research and discussion, and exploration of different alternatives, was conducted in 1999. An RFP process has now been concluded and contract negotiations are underway with the selected vendor to begin building this portal.

Plans are underway for Utah State University Extension Services to begin offering technical training services through agriculture extension centers, helping teach citizens how to access and use the Internet. This new program will provide a valuable local source of training and information for individuals and businesses in rural Utah. In addition, SmartUtah continues to play a valuable role in increasing the understanding about technology and the Internet in many areas of the state.

DCED has begun expanding Internet access to Utah businesses through a new web site for the Film Commission and the Utah Heritage Business project.

‘e-Utah’ Portal Delivers Online Government Information & Services

The new State web site, e-Utah, has undergone significant revision and includes major enhancements in making state government more accessible to citizens and businesses. The e-Utah site has had nearly a five-fold increase from a previous six-month average of 1.3 million hits to 6.3 million hits in March 2000.

New government services that are now available over the Internet through the ‘e-Utah’ portal include:

- ▶ Citizens can access an integrated statewide calendar of events, meetings, etc.
- ▶ Citizens can access an integrated statewide posting of press releases and public notices online.
- ▶ Citizens can purchase a fishing license online.
- ▶ Citizens can pay state income taxes electronically, either by telephone or via the web. Some business taxes are handled via electronic funds transfer.
- ▶ Citizens can search to see if a particular business entity is licensed and in good standing in the State.
- ▶ Citizens and businesses are able to request that their tax refund be deposited directly to their bank account via electronic funds transfer.
- ▶ Businesses can search online to see if a particular business name is available for use and make an online application to use that name or brand.
- ▶ List of new business entities in the State, or businesses that have had their license revoked, can be requested via an online transaction.
- ▶ A certificate of good standing for a business entity can be purchased online and printed out via the web.
- ▶ Insurance companies and other business entities (only those allowed legally by statute) can request, purchase, and receive driver records online.
- ▶ Automobile dealers, banks, and other business entities can request, purchase, and receive motor vehicle title, lien, and registration information online.
- ▶ Many different types of government forms, from many agencies, are available to citizens online.
- ▶ Citizens can apply for and pay for birth and death certificates online.
- ▶ Citizens can search for employment opportunities and submit resume information online.
- ▶ All available state jobs are published on the Internet with instructions and documents to apply for them.

- ▶ Citizens can send a free virtual postcard from the Utah web site to family and friends.
- ▶ Citizens can update their driver license information, such as a change of address, via the web.
- ▶ Citizens can search health data and vital record data online, and can request vital record certificates online.
- ▶ Citizens can look up personalized license plates on the web and apply for/reserve a specific "vanity" plate for their use.
- ▶ Citizens can look up state surplus property listings online and participate in an auction over the Internet to purchase the property.
- ▶ Vendors are able to register for bids and RFP's online, and receive automatic notification when new procurement opportunities are posted by the State.
- ▶ Attorneys can file court documents online using digital certificates.

Additional services planned for the state portal during the coming months include online registration of motor vehicles, and the ability to conduct business registrations and annual report filings online.

The 'Central Web Services' team was organized in the Division of ITS, and charged with developing infrastructure and applications for a State intranet, or 'Inner Web'. That development has proceeded, and the intranet has begun operation. Applications, such as the ability for state employees to make W-4 form changes online, submit time and attendance, view payroll information, and change health benefits, will be developed and deployed throughout the coming year.

The State's purchasing division continues to make progress in providing online support for procurement processes. A new purchasing card program was deployed this last year, helping enable online purchases. In addition, the capability to order electronically from several key vendors was added. In a few months the Division of Purchasing plans to enter into a vendor contract for a comprehensive e-procurement system.

Mission and Purpose of Information Technology

The following “Guiding Principles” outline the mission and purpose of information technology in state government:

- ▶ *Use information technology to continually improve government efficiency and effectiveness.*
- ▶ *Increase access to information and services for both citizens and government employees, while protecting privacy and fostering openness in government.*
- ▶ *Use information technology as a catalyst to re-engineer current practices and design better ways of conducting the business of government.*
- ▶ *Contribute to economic growth and enhanced quality of life for all Utah citizens.*
- ▶ *Enhance the quality of education and promote life-long learning.*

Key Strategic Goals

The following have been identified, in order of priority, as the key strategic goals, which should define the state's current focus and efforts in accomplishing the mission and purpose of information technology in state government.

1. **Move government on-line.** Conduct the business of government electronically and implement Governor Leavitt's vision of Utah as a 'Digital State' by 2002:
 - 1.1.1 Offer a comprehensive suite of government services and information on the Internet via the State's web portal e-Utah.
 - 1.1.2 Ensure all state government forms are accessible via the web.
 - 1.1.3 Deploy intranet applications to streamline internal employee processes.
 - 1.1.4 Develop a comprehensive e-procurement solution for purchasing.
 - 1.1.5 Implement the necessary public key infrastructure to support secure electronic transactions for citizens and state employees.
 - 1.1.6 Deliver integrated government services.
 - 1.1.7 Complete a comprehensive statewide e-government architecture.
2. **Continuously hire and effectively manage the best possible IT employees.**
 - 1.2.1 Request funding from legislature to increase IT personnel salaries.
 - 1.2.2 Establish and implement a recruitment plan to ensure a continuous "pipeline" of qualified new IT personnel for the State.
 - 1.2.3 Implement a specific program to move non-IT personnel into IT positions.
3. **Provide appropriate IT education and training for all state employees.**
 - 1.3.1 Appoint a State IT Training Coordinator and a Training Council with responsibility for coordinating IT training statewide.
 - 1.3.2 Develop and implement a state IT training plan.
 - 1.3.3 Establish clear IT training standards, including minimum levels of training required annually for IT personnel.
 - 1.3.4 Deploy an online Training Resource Center to enhance access to training materials and opportunities.

Goals, Strategies and Methods

This section of the strategic plan outlines those strategies and methods by which the key strategic goals and objectives will be accomplished. Associated with each goal are a set of benchmarks to be used in assessing progress in achieving the goal.

1.0 Goal 1 -- Move government online. Conduct the business of government electronically, and promote universal electronic access for all citizens. Utilize specific internet, intranet, and extranet strategies to implement Governor Leavitt's vision of Utah as a 'Digital State' by 2002.

1.1 Offer a comprehensive suite of government services and information on the Internet via the State's web portal e-Utah.

- 1.1.1 Continue to expand e-Utah, the State's government services and information portal, to provide online services to citizens and businesses. Continue to improve and evolve the state's citizen-centric web presence. Continue to work closely with the State's selected vendor to manage a state government services and information network, and accelerate the online delivery of government services to citizens and businesses. The network will continue its work with state agencies to identify services and transactions such as government document filings; payments of taxes, fees, fines; licensing, registration and permits issuance and renewals for businesses, facilities and individuals; and citizen-centric access to government publications and information.
- 1.1.2 Utilize the Utah Electronic Commerce Council to provide guidance and oversight for the implementation of these online services.
- 1.1.3 Continue to develop infrastructure and core services that can be shared across agencies for handling security, authentication, electronic forms, workflow, electronic funds transfer, electronic payments, and interfaces to the state's financial and accounting systems for applications that are hosted on the network.
- 1.1.4 Coordinate with state agencies on core services, design guidelines, and applications as agencies provide more services and information through the Internet. Support the re-design of citizen to government and business to government services at the state agency level such as the Department of Workforce Services *U-Works* project and the Department of

Environmental Qualities (DEQ) *Environmental Information Management Initiative (EIMI) project.*

- 1.1.5 Identify opportunities for offering customized services to businesses and citizens electronically through active solicitation of citizen and agency input. Conduct citizen surveys and appropriate investment analysis to determine which applications the state should focus on first.
- 1.1.6 Continue to coordinate an ongoing process to identify legal or legislative barriers to electronic commerce and the online delivery of services, and work to remove them. The Utah Electronic Commerce Council and applicable state agencies will continue to review relevant statutes, laws, and rules that may enhance or create barriers for electronic commerce and identify any needs for legislative changes to the ITPSC and the IT Commission. Continue work on policy level barriers to Internet payment processing, and continue to evaluate credit card, debit cards, direct debit, micropayments and other payment alternatives.
- 1.1.7 Continue to give priority attention to identifying and pro-actively addressing security and privacy issues that are barriers to electronic commerce.
- 1.1.8 Develop policies and procedures that agencies should follow in implementing the Governor's vision of a 'digital state'. This would include tools to assess the cost effectiveness of changes in traditional service delivery methods, policies for handling issues of privacy and secure access, establishing appropriate methods for electronic authentication and verification, and policies to ensure universal access to online services.
- 1.1.9 Require department senior executives, division directors, and public information officers to review agency web sites and provide specific input and recommendations on a regular basis to agency web designers and developers.
- 1.1.10 Agencies will incorporate an analysis of technology-based alternatives for service delivery into their strategic business planning efforts. Agency IT directors or managers should be heavily involved in agency strategic business planning initiatives.
- 1.1.11 Continue to work with the Web Standards Team and the Information Technology Policy and Strategy Committee (ITPSC) to establish new standards and update recommendations and guidelines for all state web

pages to ensure a common look-and-feel for the state's web presence. Provide consistent navigation and search capabilities, and promote interoperability of web content and web development environments.

- 1.1.12 In coordination with state agencies, track and develop implementation schedules for online government services identified in the Digital State Act. These schedules will identify whether these applications will be developed primarily through the e-Utah project, by the agencies internally or through assistance from outside contractors. The UECC will assist the CIO in periodically reviewing progress toward e-government "Digital State" objectives. Key applications identified thus far, with target dates falling within the coming year, include: hunting licenses (small game and deer tag); *Rapid Renewal*, the online renewal of motor vehicle registrations; *Utah Business Registration Center*, an integrated services delivery system for business registration involving the State Tax Commission, Department of Commerce and local governments; tax filing for fuel carriers; application and renewal of occupational and professional licensing and renewal of driver's licenses.

1.2 Ensure all state government forms are accessible via the web.

Develop standards-based solutions to aid agencies in creating, distributing, and accepting web-based forms. This will require evaluation of potential forms design and implementation packages, and development of standard methods for accepting and processing web-based forms.

- 1.3 **Deploy intranet applications to streamline employee processes.** Continue to develop and deploy applications for the state's "Inner Web", providing single-point access to services and information pertinent to state employees. Utilize the State Intranet Steering Committee to set development priorities and provide strategic direction for this initiative.

- 1.3.1 Implement an Intranet web portal for state employees to access services and information, including on-line access to directories, organizational charts, policies, rules, and procedures; on-line training opportunities, forums or chat facilities for discussion or suggestions, on-line applications for time and attendance tracking, travel, scheduling, approvals, reimbursements, benefit changes and enrollment, job postings and access to on-line employment services offered by DHRM; tracking employee information, and posting of current news and information for both the state enterprise as a whole and also specific to a division or agency.

- 1.3.2 Maintain and continue to grow the 'Central Web Services' team-- composed of a core group and "floating members" to serve as "project

specialists” to (1) provide resources for the development of statewide web-based applications, such as the state employee intranet, and maintain and enhance the state’s home web pages; (2) provide training and information to agency web developers; (3) act as a resource for web development skills which agencies do not yet have in their own development organization; (4) develop and administer state web standards and guidelines, and (5) provide guidance to agencies on new and changing web technologies. The core resources for this team will reside in ITS. Departments are also encouraged to contribute members to the team based upon their availability and expertise for specific time limited applications development projects.

- 1.3.3 The top priority Innerweb applications for the coming year are: employee viewing and printing of online pay stub information; employee online submission of forms; authorized online access to individual employee human resources information; online time and attendance system for entering payroll and employee leave information; post and apply for state jobs online; view human resource policies, rules, handbooks online; re-write and enhance online state employee telephone directory; and online publishing of the state’s newsletter *Capitol Connections*.

1.4 Develop a comprehensive e-procurement solution for purchasing.

- 1.4.1 Work with the Division of Purchasing, the Division of Finance, ITS, and state agencies to implement the technology and procedures necessary to allow the state to purchase, contract, order, bill, and pay for goods and services electronically. The current RFP for a comprehensive e-procurement system is intended to create a partnership with a private sector provider, in an ASP-type model, to host these services online in the form of an ‘electronic trading community’ for state government and government subdivisions.
- 1.4.2 Continue to promote the use of the state purchasing card and other emerging payment processes to facilitate secure online transactions..
- 1.4.3 Continue to explore the option of online vendor response to bids and requests for proposals (RFPs). This may be a part of the e-procurement solution that the State contracts for.
- 1.4.4 Explore the possibility of migrating the state’s manual paper based contracting process to an on-line web based process.

- 1.5 **Implement the necessary public key infrastructure to support secure electronic transactions for citizens and state employees.** Develop a statewide public key infrastructure that utilizes digital signatures and key encryption for secure electronic transactions between citizens, businesses and employees of state government.
- 1.5.1 Award statewide contract for PKI and digital signature products and services. Work with selected vendor to implement appropriate infrastructure, core services, and procedures for managing certificates for state employees and external partners.
- 1.5.2 In coordination with state agencies, set development and deployment schedules for new PKI-enabled applications.
- 1.5.3 Develop and deploy a program to lower the cost of distributing certificates, and/or other key mechanisms, to the general public and business community in the state. Develop applications that will allow citizens and businesses to transact business securely with the public sector, and with each other, using digital signatures.
- 1.6 **Deliver integrated government services.** Develop applications that improve customer service by providing integrated access to information and services across agency and department boundaries. Maximize opportunities for coordination and sharing of information across the state enterprise.
- 1.6.1 Evaluate and re-engineer business processes from the customer's point of view, with the goal of designing new integrated paradigms for service delivery rather than incremental improvements in the management of individual programs.
- 1.6.2 Identify groups of departments and agencies that provide services or information to common sets of customers. Such groups may include agencies that deliver social services, agencies that provide support for law enforcement, agencies that regulate and support businesses, agencies that deal with motor vehicles, etc. Organize cross-agency design teams to develop integrated services for these customers. Promote joint review and development of applications to deliver integrated services.
- 1.6.3 Develop IT applications which follow data standards and state IT architectural standards and which promote sharing of data.

- 1.6.4 Develop mechanisms for citizens and businesses to more easily access integrated sets of information from a single point of access, including the state's web portal.
- 1.6.5 Develop an integrated directory to social services referral information, including services from all levels of government.
- 1.6.6 Develop a single integrated business registration center that simplifies the process for a business to comply with regulatory requirements for operating in Utah.
- 1.6.7 Evaluate the effectiveness of web search engines in meeting customer demands in locating general government services information, including GILS (Government Information Locator Service) in the evaluation. Assess the availability of software that can monitor web pages for completeness of meta-tag descriptions.
- 1.6.9 Provide support to departments in moving toward greater centralization of IT resources. Concentration of IT expertise within a department provides opportunities for leveraging the combined skills of IT personnel, and places the department in a better position to develop integrated applications and standardize shared data. Develop guidelines for centralization of IT resources, and identify opportunities for such centralization at both department and state levels.
- 1.6.10 Establish an Intergovernmental IT Council with representatives from county, city, state, and federal agencies to coordinate on integrated services, share information, and optimize network infrastructure development.
- 1.6.11 Develop a process for creating partnerships between agencies to address new service and business process opportunities. Periodically opportunities present themselves in government in which significant IT cost savings can be achieved or in which IT infrastructure standardization can be an important component for more effective operation. To realize these outcomes, often requires agencies to join together in a partnership. The CIO, in concert with members of the ITPSC, will develop a process for building these types of partnerships between agencies. The CIO's office will continue to provide oversight for ongoing projects requiring cross-agency oversight, including CVISION, and the Juvenile Justice System.

- 1.7 **Complete a comprehensive statewide e-government architecture.** Define statewide architecture, technology, and data standards to enhance communication, collaboration, and the sharing of information and information technology resources. Implement a technology foundation to support improved customer service and decreased costs through electronic government processes.
- 1.7.1 Continue to develop, refine, and evolve the statewide Enterprise Architecture Framework and domain architecture definitions for Applications, Collaboration and Workflow, Data and Information, Electronic Commerce, Networks, Security, Platforms, and Systems Management.
 - 1.7.2 Establish statewide standards and statewide purchasing contracts, when appropriate, to support the domain architectures definitions. Initial priorities include the areas of application architecture for web-based applications, security, imaging, and electronic transactions to support e-government.
 - 1.7.3 Ensure that the domain architecture definitions for Applications and Electronic Commerce provide for standards and recommended technology solutions to enable agencies to implement applications that use electronic forms, XML for data transfer, electronic signatures, and electronic payment processes.
 - 1.7.4 Substantially improve the technology, policies, and procedures for ensuring that state networks, information systems, and protected data are secure and resistant to attack or intrusion. With the help of the State Information Security Committee, develop a comprehensive statewide network security policy.
 - 1.7.5 Establish an architectural implementation plan for electronic government that clearly identifies what systems and technology will be implemented and maintained centrally by ITS or other organizations (such as e-Utah), and what will need to be implemented by individual agencies. This implementation plan should address technology systems that relate to deploying web-based applications, including application hosting environments, 24x7 operations support systems, electronic authentication support, directory services, electronic forms, workflow support, and electronic payment processing.
 - 1.7.6 Provide central coordination, policies, and deployment support for electronic authentication techniques to be used by both internet and

intranet applications across state agencies, including use of digital signatures.

- 1.7.7 Ensure that all applications are developed so that they support three-tier application architecture, leverage web-based access and services, and conform to existing state technical architecture and standards.
- 1.7.8 Utilize the web-based Architecture and Standards Information System (ASIS) as a repository and workflow tool to manage the proposal, review and dissemination of state architecture documents and technical standards. Continue to use the IT Knowledge Warehouse as a vehicle for communicating architecture and standards information to IT personnel throughout the state.

1.8 **Benchmarks**

- 1.8.1 *Citizens and businesses are able to easily access services and information provided by state government anytime, anywhere, using Internet technologies. All services and information that can reasonably be made accessible via these technologies are offered on-line. A single, well-publicized, portal gives citizens and businesses access to online transactions and government information.*
- 1.8.2 *Ordering, billing, purchasing, and paying for goods and services used by state government is done electronically using web-based technologies wherever possible.*
- 1.8.3 *All web pages maintained by state government adhere to consistent standards of look-and-feel and provide consistent functionality and up to date information.*
- 1.8.4 *Regular input is solicited by the state from citizens and businesses regarding the use of information technologies in their interaction with government.*
- 1.8.5 *The state has provided reasonable facilities and opportunities for all its citizens, regardless of where they live, access to on-line services, information, and educational resources.*
- 1.8.6 *The state has deployed network technologies necessary for moving internal processes on-line, including workflow, security, electronic forms, remote access, and document and image management technologies.*

- 1.8.7 State employees are able to easily access up-to-date information and commonly used services on-line from their workplace or home, including directories, policies, rules and procedures, training opportunities, employment services, news and information, travel services, payroll services, and employee benefit changes.*
- 1.8.8 Significant numbers of citizens, businesses and employees are able to digitally sign standards-based web forms and documents over the Internet and Inner Web securely and conveniently. The public key infrastructure that is created will be interoperable and based on evolving industry standards. Digital certificates will be interoperable through a certificate gateway (arbitration) module.*
- 1.8.9 Cross-agency teams exist for groups of agencies serving common customers, and address re-engineering of business processes as part of their analysis in proposing system changes. An integrated "Utah Business Center" simplifies the process for businesses to fulfill government regulatory requirements for operating in Utah. An integrated web-enabled directory to social services simplifies the information referral process.*
- 1.8.10 Intergovernmental IT Council meets regularly and is utilized for coordination of IT initiatives across levels of government.*
- 1.8.11 An enterprise architectural framework exists specifying appropriate IT architecture and standards for the state. Defined processes exist for establishing new standards and architecture, revising existing ones, and providing for exceptions when necessary.*
- 1.8.12 All application programmers and IT personnel in state agencies understand the technology, tools, and infrastructure available to develop web-based applications and electronic government solutions.*

2.0 Goal 2 - Continuously Hire and Effectively Manage the Best Possible IT Employees. Establish and implement a plan to ensure a continuous “pipeline” of qualified IT personnel for the State.

- 2.1 Request funding from the legislature to increase IT personnel salaries. Develop a proposal for the legislature and state budget officers to increase IT personnel compensation to higher levels that are more competitive with the general market and to fully fund incentive plans for IT employees.
- 2.2 Establish and implement a recruitment plan to ensure a continuous “pipeline” of qualified new IT personnel. The plan should include strategies such as Internet-based recruiting, advertising, and regular visits to state colleges and universities. Evaluate the potential for outsourcing part of the recruitment process to an outside organization. Provide recruitment and employee retention seminars to IT supervisors.
- 2.3 Implement a specific program to move non-IT personnel into IT positions. Identify funding, qualifications, incentives and communication strategies needed to successfully develop this source for new IT personnel.

2.4 Benchmarks

- 2.4.1 *An improved IT compensation package will be prepared by DHRM, the CIO's office, ITS and the Governor's Office of Planning and Budget and presented to the legislature during its next session. A communication strategy will be developed to encourage approval and funding of the compensation package.*
- 2.4.2 *A statewide IT recruitment plan is established and implemented, including at a minimum a regular program of recruiting candidates at local colleges and universities, and regular use of the Internet to recruit candidates.*
- 2.4.3 *A specific program will be developed and approved by the Governor and the cabinet that describes a career path for non-IT government employees to move into IT positions, and provides funding for the needed education and training for such transition.*

3.0 Goal 3 -- Provide appropriate IT education and training for all state employees.

Develop a clear training plan, establish training standards, provide new training opportunities, and coordinate IT training opportunities centrally. Enhance the ability of IT professionals, agency managers and end users to quickly learn and effectively apply, emerging information technologies to the task of delivering better government at less cost.

- 3.1 Appoint a State IT Training Coordinator and a Training Council with responsibility for coordinating IT training statewide. Responsibilities of the Training Coordinator would include coordinating procurements of training and training materials, identify training functions that should be centrally coordinated, scheduling training resources, management of the Training Resource Center and a catalog of training materials, etc. The Training Council should be made a formal subcommittee of the ITPSC.
- 3.2 Develop and implement a state IT training plan. Conduct appropriate needs analysis to identify the gap between desired proficiency and existing IT skill levels for end users, IT professionals and managers. This survey would identify common training needs, map out the relationship between strategic goals and needed training, and then recommend the design of pre-learning activities, learning events and post learning activities. Courseware development and acquisition strategies should be included as part of the plan.
- 3.3 Establish clear IT training standards, including minimum levels of training required annually for IT personnel. These minimum standards should be expressed in terms of a set number of hours of training in core areas of expertise for each IT position.
- 3.4 Deploy an online Training Resource Center to enhance access to training materials and opportunities. Build and manage an online, interactive training delivery system.
- 3.5 Ensure that agency executives and budget officers understand the need for ongoing training for state employees, and encourage specific allocation of budget funds by both the legislature and the agencies to meet minimum IT training standards.
- 3.6 Form an educational partnership with a specific state college or university to provide curricula that is attuned to the needs of state government IT systems and provide internships and hiring opportunities for students in that program.

3.7 Benchmarks

- 3.7.1 *A State IT Training Coordinator and active Training Council are established and active in preparing state training standards, identifying training opportunities and curricula, and helping agencies and state employees identify and assess training needs.*
- 3.7.2 *An online Training Resource Center (TRC) is available to all state employees via the State's Inner Web, and provides tools for training assessment, listings of appropriate online training content, and access to training resources and opportunities.*
- 3.7.3 *Department executives, legislators, and budget officers recognize the need for ongoing IT training and allocate appropriate budget funds to ensure each state employee receives adequate IT training.*

Significant Accomplishments and Awards

Y2K Preparations

The State successfully prepared its computer systems, building control systems, and other technical equipment to make the transition to the Year 2000. 100% of state systems were prepared and successfully managed through the date change. This effort, begun in 1995, required coordination and cooperation across all agencies and political subdivisions, and included the efforts of personnel in every department. The State spent approximately \$40 million in total to remediate and test its systems in preparation for the Year 2000 date change.

The State also spent considerable time and effort helping to communicate the nature of the problem and encourage appropriate preparation by businesses, schools, and citizens. The Governor's Coalition for Year 2000 Preparedness, organized in 1998, successfully helped coordinate Y2K activities across many industries, including health care, banking, utilities, manufacturing, and public safety.

'Digital State' Legislation and Progress

In January 1999, Governor Leavitt outlined several key goals for becoming a 'Digital State', including the ability for every home, school, and business to access high-speed Internet services; providing online educational opportunities; adoption of electronic commerce technologies by Utah businesses; and delivering government services electronically via the Internet. The 1999 Legislature passed the 'Digital State Act', which provided additional direction and impetus for accomplishing these goals. The passage of this legislation set out specific goals to be accomplished relative to the delivery of government services via the Internet.

During the last year, significant new digital infrastructure investments have been made by the telecommunications industry in Utah. The high percentage of Utah residents and businesses who have Internet access, and the coming 2002 Olympics, have encouraged rapid deployment of new broadband technologies. Approximately 50% of residential consumers, and an even higher percentage of businesses, now have the ability to access high-speed Internet data services. The State developed a new web portal for citizen and business services— called 'e-Utah'— and has also made significant progress in offering services to citizens and businesses via the Internet— including services such as buying a fishing license, looking up a business entity or name in the State, and paying taxes and receiving tax refunds electronically. Continuing efforts by our colleges and universities, the Utah Education Network, the Electronic Community College, the Electronic High School, and the Western Governor's University are providing an ever increasing number of quality educational resources, content, and opportunities online via the Internet.

E-Utah State Web Portal

One of the significant efforts begun this last year is the development of a consistent, integrated web portal for delivery of government services via the Internet. As the result of an RFP process, the State has contracted with a private sector company to assist in the development of online applications and the delivery of information and services via a web portal called e-Utah. This project included the complete redesign of the State's web site to make it more citizen-friendly. The new state web site makes it easier for citizens and businesses to find the information they are looking for, and provides the infrastructure, security, and 24x7 service levels to allow us to begin deploying online transactions with state government. Most services that have been deployed this last year are geared for commercial or business constituents, such as being able to determine if a business name is available for use, the ability for insurance companies to check motor vehicle records, and a service to allow automobile dealers and banks to check vehicle title, lien, and registration information via the web. But there have also been some general citizen services added, such as being able to buy a fishing license online, sending a virtual postcard from the Utah site, searching to see if a business or corporate entity is registered to do business in Utah, etc.

A significant part of the effort in bringing up the new state portal involved creating the appropriate organizational and policy structure for delivering online services. Earlier this year, Governor Leavitt issued an executive order creating the Utah Electronic Commerce Council, an advisory council to provide guidance and oversight in administering the portal and developing e-government applications. You can visit the State's new web site at www.e-utah.org.

State Employee Intranet, or 'Inner Web'

The State has developed an enterprise-wide intranet, allowing us to develop and deploy web-based applications to simplify and streamline internal government processes and delivery of information and services to state employees. This year the infrastructure, security, and directory technologies were put in place to allow the State 'Inner Web' to move forward. Initial applications that have been developed include delivery of news and information to state employees via the intranet, a training resource center to enhance access to information technology training resources, and an application to allow employees to change or edit their W-4 information online. This foundation will allow additional web-based applications to be developed and deployed in the coming months, including payroll processes, job postings and resume handling, and internal approval processes for expenses and travel. State employees can access the state intranet at innerweb.state.ut.us using their network login id.

'PlanIT' Helps Track IT Investments

The State developed and deployed a new internal “portfolio management” system and process for tracking IT investments called PlanIT. This system will allow decision-makers and IT managers to better understand and manage their use of IT resources. It also provides a consistent mechanism for agencies to use in assessing risks and benefits of proposed IT projects, and the State adopted policies as a part of this effort to require analysis of costs and return on investment for most technology projects. The system is integrated with the State’s financial system to allow actual costs of IT projects to be tracked more easily.

Major Network Developments

Two significant developments occurred this last year to enhance the State’s networking infrastructure. The State deployed a video-conferencing network that allows state agencies to conduct tele-conference meetings in many locations throughout the State. This will reduce the travel expenses for training and coordination meetings. The State, by contracting with a private vendor, was also able to deploy a new high-speed, self-healing, fiber optic network connecting the major state facilities in the metropolitan Salt Lake area. This new broadband network utilizes the latest technology such as Synchronous Optical Network (SONET) and Asynchronous Transfer Mode (ATM) communications switching to provide a state of the art platform for multimedia communications between these major government locations.

Utah Education Network Development

The Utah Education Network (UEN) this year announced and has made significant strides in implementing a new strategy of “network fusion”-- combining delivery of voice, video, and data to schools throughout Utah. Its mission is to promote innovation and excellence in Utah’s public schools and institutions of higher education by providing networks for the dissemination of electronic educational materials, and facilitating resource sharing. The strategy of combining previously disparate networks and infrastructure for telecommunications, interactive video courses, and Internet access is helping Utah deliver leading edge technology to more schools throughout Utah, as cost-efficiently as possible. Previously, access to multiple telecommunications facilities and lines was required to feed voice, video, and data into schools-- under the new strategy, a single high-bandwidth “pipe” into the school can feed all types of media and electronic communications.

UEN has also provided very important leadership and coordination during this last year in the development of, and access to, high-quality educational content for teachers and students. Resources for both students and teachers are available through its web site, including access to virtual field trips to sites of interest in our State and elsewhere, virtual theme parks where students can explore subjects of interest in detail, additional satellite-based delivery of courses to students throughout Utah, and training in the use of technology and tools for both students and teachers.

Digital Signature Applications

This year saw the successful deployment of the State's first significant digital signature application in state government-- acceptance of electronic court filings using digital signature technology. The Court Administrator's Office continues to be a leader in applying technology streamline and simplify judicial processes. The Utah Electronic Law and Commerce Partnership also played a significant role in helping to coordinate and deploy this application. The State also conducted, during 1999, a successful pilot project to allow Uniform Commercial Code filings to be submitted by financial institutions to the Department of Commerce electronically using digital signature technology. Also, changes were made this last year in the law to allow for electronic notary processes using digital signature technology.

National Recognition And Awards

1. **PC Week**, in the [March 16, 1999](#) issue names the Utah System of Higher Education number one, and the State of Utah number five on the Fast-Track 100 List of Technology Innovators in Government and Education. PC Week recognized the State of Utah as a leader in technology innovation for both government and education.
2. [Governing Magazine](#) and Pew Charitable Trust through its *Government Performance Project* recognized our information technology management efforts as being among the [best in the nation](#) (third highest ranking of any state).
3. **National Association of Information Resource Executives** (NASIRE) recognized the State's Mobile Data Collection System/CDPD project as the winner of its [1999 Recognition Award](#) in the category of intergovernmental applications. This was a joint project with local law enforcement agencies in the State, and also received recognition as a semifinalist in the 1999 Global Information Infrastructure Awards.
4. [Civic.com Magazine](#) featured Utah's as a leader in electronic privacy policies in a case study in its March 3, 2000 issue.
5. **The Center For Digital Government** a joint effort of the Progress and Freedom Foundation and Government Technology Magazine recognized [Utah as second and third](#) in the nation among states in the areas of [law enforcement, courts](#) and [social services](#) information technology innovation.

Governor's 'State CIO' Recognition and Awards

Governor Mike Leavitt recognized the outstanding state technology projects for 1999 with the [Governor's CIO Awards for Information and Technology Project Excellence 2000](#) on January 25, 2000. The winners of this award exemplify best practices in the

design and implementation of Information Technology systems to promote quality in state government.

Eleven projects were selected for awards as follows:

The state of Utah's Y2K Project - The state's Y2K project team re-mediated date computation error problems in hundreds of state information systems, plus replaced non-Y2K compliant embedded systems in state facilities. The team successfully prepared 100% of its computer systems, building control systems, and other technical equipment to make the transition to the year 2000. This effort, begun in 1995, required coordination and cooperation across all agencies and political subdivisions, and included the efforts of personnel in every department. The state spent approximately \$40 million in total in preparation for the year 2000 date change.

The Department of Human Services' E-Chart Information System - This is a new information system jointly developed by the Utah State Development Center and the Utah State Hospital. E-Chart is a comprehensive patient care information system, which also includes extensive hospital administration functions, as needed by these specialized state facilities. E-Chart is currently under consideration for use by the state of Alaska.

The Department of Workforce Service's Contributions Automated Tax System (CATS) - The CATS project team developed a new automated unemployment tax payment and reporting systems used by Utah's business community.

The Department of Environmental Quality's One Stop Reporting system - The One Stop reporting project is part of a national EPA initiative to reduce the burden of reporting environmental information at the state and federal level. The first phase of this project, now completed, provides access to environmental information via the Internet for government agencies, environmental groups, and concerned citizens, and ensures the accuracy and reliability of the data. It has also included the electronic reporting of water samples to the Water Quality program. Future phases of this project will allow web-reporting by businesses who are required to submit environmental data and the ability to access information about environmental permits online.

e-Utah, the state of Utah's e-government initiative - Redesign of the Internet home page - The project has significantly simplified Internet access to state government information and services for Utah's citizens, providing a single online portal, or gateway, to state government. This project included the complete redesign of the state's web site to make it more citizen-friendly, and development of appropriate infrastructure and security to allow state agencies to begin

deploying online services around the clock. Some of the key services which have recently been introduced on the e-Utah site include the ability to buy a fishing license online, send a "virtual postcard" from Utah, and search to find if a business entity or corporation is registered in the state. There are also services for business entities, including the ability to find out if a business name is available for use, and the ability for insurance companies to check motor vehicle information. You can visit the state's new web site at www.e-utah.org or at www.state.ut.us.

The Department of Alcoholic Beverage Control's (ABC) *Retail Point of Sale System* - The new point of sale based, enterprise-wide information system supports the state's retail liquor store operations, warehousing operations, and liquor regulatory functions.

The Utah Department of Transportation's *Ports of Entry systems* - The Ports of Entry systems improve the efficiency of permitting, regulatory, and safety inspections of commercial trucks traveling in Utah. The Ports of Entry systems are a sub-set of a much larger national Commercial Vehicle Information System and Networks (CVISN) project, the commercial vehicle component of the nations intelligent transportation system.

The Department of Human Services' *Data Warehouse* - The Data Warehouse allows department caseworkers access to client information and DHS services provided by different divisions. This data warehouse also provides improved management information for monitoring the quality of services provided.

The Utah Education Network's *Network Fusion project* - This project implemented a new strategy of "network fusion"-- combining delivery of voice, video, and data to schools throughout Utah. The strategy of combining previously disparate networks and infrastructure for telecommunications, interactive video courses, and Internet access is helping Utah deliver leading edge technology to more schools throughout Utah, as cost-efficiently as possible. Previously, access to multiple telecommunications facilities and lines was required to feed voice, video, and data into schools— under the new strategy, a single high-bandwidth "pipe" into the school can feed all types of media and electronic communications.

The Utah Prosecution Council's *Prosecutor Dialog Case Management System* - This is a criminal prosecution case management system developed by the state and implemented by many Utah cities, counties, and the State Attorney General's office. The project has improved productivity of processing criminal prosecutions and also improved the quality and amount of criminal history information in state and federal criminal history databases.

The Department of Administrative Services' *Inner Web* - This is the state's new intranet, a secure web resource for in-house use by state employees for processing employee related information, internal policy communications, and department/division communications. The *Inner Web* project provides the security and directory technology infrastructure to allow development of internal applications to streamline government processes. Initial applications that have been developed include delivery of news and information to state employees via the intranet, a training resource center to enhance access to information technology training resources, and an application to allow employees to change or edit their W-4 information online.

State IT Organization

The state's information technology resources are managed by a hybrid organization, with centralized services existing in concert with independent agency control over their own applications and projects. The State's Division of Information Technology Services (ITS), which reports to the Department of Administrative Services, provides mainframe, telecommunications, and wide-area networking services for all state agencies, as well as local area network services and web hosting for some agencies. These services are operated as an internal service fund, with rates being charged to departmental budgets for the services rendered. The State's Chief Information Officer is responsible for policy, planning, standards, and approval of technology and projects submitted by state agencies and ITS. Individual agencies and departments have budgetary control and responsibility for maintaining their own desktop equipment and software, the deployment of applications, and end-user technical support and services.

The following sections highlight the key organizations and committees responsible for information technology in state government.



<http://www.cio.state.ut.us>

The Chief Information Officer's Section of the Governor's Office of Planning and Budget consists of the State's Chief Information Officer, and staff. The State CIO also serves as a member of the Governor's Cabinet and Senior Staff. Key responsibilities include oversight, planning, strategy and vision for information technology in state government, development and administration of policy, and approval of information technology projects and plans as submitted by state agencies and the Division of Information Technology Services. Current members of the CIO's office are as follows:

- Dave Moon, Chief Information Officer
- Al Sherwood
- Alan Carlsen
- Jeannie Watanabe
- Vaughn Taylor
- Robert Stewart
- Rebecca Whiting, Administrative Assistant



The Division of Information Technology Services serves the citizens of the state of Utah by understanding the needs of government agencies and by providing high quality, yet cost effective, centrally managed shared information technology products, services and support. They provide a broad range of technologies and services, including voice and data communications, main frame and desktop computing, local and wide area networks, web application development and hosting, geographic information systems and emerging technologies.

ADMINISTRATION

- Leon Miller, Director
- Gene Puckett, Assistant Director
- Bob Woolley, Assistant Director
- Kathleen Abbott, Administrative Assistant

KEY PROJECTS

- Computer Installation Management System
- Equipment Inventory System
- Service Tracking and Reporting System
- Inner Web Project
- Web Application Development
- Web Hosting Services
- Web Based Reporting Project
- LAN-CITRIX Project
- WAN Routing and Switching Project



<http://www.governor.state.ut.us/cio/New/ITPSC/itpsc.htm>

The Information Technology Policy and Strategy Committee (ITPSC) is statutorily created by 63A-6-304, UCA. ITPSC evaluates and recommends information technology policies,

procedures and standards for the State of Utah and acts under the direction of the ITPSC Executive Committee.

MEMBERS

ITPSC is created by the State's Chief Information Officer and is composed of one representative from each of the following who chooses to participate: each executive branch agency, appointed by the director of that agency; the legislative branch, appointed by the Information Technology Commission; the judicial branch, appointed by the judicial council; cities, appointed by the Utah League of Cities and Towns; counties, appointed by the Utah Association of Counties; the federal government, appointed by the chief information officer; the members of the executive committee; public education, appointed by the Board of Education; and higher education, appointed by the Board of Regents. The members of ITPSC for the 1999-2000 fiscal year were:

- David Moon, Chief Information Officer (Chair)
- Connie Laws, Department of Workforce Services
- David Willis, Department of Commerce
- Neal Christensen, Department of Transportation
- GaeLyn DeLand, Department of Corrections
- Ken Elliott, Department of Environmental Quality
- Randy Fisher, Department of Health
- Raylene Ireland, Department of Administrative Services
- Dave Fletcher, Department of Administrative Services
- Leon Miller, Department of Administrative Services
- Brent Cleverly, Department of Human Resource Management
- Harry Sutton, Department of Human Services
- Roland Squire, Department of Public Safety
- Carl Meek, Department of Insurance
- Renee Matsuura, Department of Agriculture
- Lloyd Johnson, Department of Natural Resources
- Mike Allred, Department of Community and Economic Development
- Bill Gerow, Utah Labor Commission
- Lynne Ward, Governor's Office of Planning and Budget
- Doug Richins, Division of Purchasing
- Kim Thorne, Division of Finance
- Kevin Van Ausdal, Utah State Tax Commission
- Julie Orchard, Public Service Commission
- Jerome Battle, Department of Courts
- Scott Brian, Utah League of Cities and Towns
- Brent Gardner, Utah Association of Counties
- Jerry Peterson, Utah State Office of Education
- Michael Petersen, State Board of Regents
- Steve Hess, Utah Education Network

STAFF

- David Moon, Chief Information Officer
- Al Sherwood, Office of the Chief Information Officer
- Jeannie Watanabe, Office of the Chief Information Officer
- Alan Carlsen, Office of the Chief Information Officer
- Vaughn Taylor, Office of the Chief Information Officer
- Robert Stewart, Office of the Chief Information Officer
- Rebecca Whiting, Administrative Assistant

SUBCOMMITTEES

- The **State Information Security Committee** develops operational procedures and implementation plans for the security of state information technology resources. They recommend policies and strategies to ITPSC for the security, integrity, confidentiality and availability of state information technology resources. The Utah Security User's Group (USUG) and the Network Security Implementation and Planning (NSIP) groups will report to the State Information Security Committee as needed. This committee is chaired by Harold Carpenter, Division of Information and Technology Services.
- The **Electronic Commerce Council** coordinates efforts statewide to use electronic commerce technologies and the Internet to deliver government services and accomplish the strategic goal of "moving government online." This council is chaired by Al Sherwood, Chief Information Officer's office.
- The **Utah Telecommunications Coordinating Committee** quarterly considers technical guidelines, network design, inter-connectivity and inter-operability issues and coordination of network development and implementation. The committee identifies opportunities to enhance efficiency of state networks by eliminating duplicate infrastructure, implementation of new technologies, and identifying opportunities for joint contracts. The committee is co-chaired by Harold Carpenter, Division of Information and Technology Services and George Brown, Utah Education Network.
- The **State LAN Administrators Committee** meets monthly to promote and maintain coordination among LAN administrators in state agencies, enabling a unified voice to support providers on LAN support issues, and exchanges ideas on implementation of local-area networking technologies. The chair of this committee is Darrus McBride, Division of Information Technology Services.
- The **Geographical Information System (GIS) Advisory Committee** meets monthly as a forum for local, state and federal government representatives actively involved in GIS

activities to discuss their work. It is chaired by Dennis Goreham, Division of Information and Technology Services.

- The **Information Technology Purchasing Strategy Committee** coordinates all information technology Requests For Proposals and bids, works with vendors and state agencies to promote awareness of product and technology availability, and promotes cost efficiencies by enabling state government to use its collective buying power. The committee also identifies needed procurement reform to enable electronic handling of state procurements. Doug Richins, Division of Purchasing, chairs this committee which meets quarterly.
- The **Architecture and Standards Technical Advisory Group** defines and coordinates technology architecture and standards for the state enterprise. They recommend architecture, standards, and recommendations for information technology resources, including software, hardware, and IT development processes to the chief information officer and to ITPSC.



The ITPSC Executive Committee is statutorily created by 63D-1-303, UCA. The ITPSC Executive Committee directs the activities and agenda of the Information and Technology Policy and Strategy Committee.

MEMBERS

The executive committee is composed of: the chief information officer, the deputy for policy of the governor's office; the director of the Governor's Office of Planning and Budget; the director of the Division of Information Technology Services; the executive director of the Department of Administrative Services; the chair of the Public Service Commission; the director of the Utah Education Network Steering Committee; and if the judicial branch or legislative branch choose to participate, one representative from the judicial branch, appointed by the judicial council and one representative from the legislative branch, appointed by the Information Technology Policy and Strategy Committee, with the approval of the president of the Senate and the Speaker of the House. The members of the ITPSC Executive Committee in the 1999-2000 fiscal year were:

- David Moon, Chief Information Officer
- Lynne Ward, Director of the Governor's Office of Planning and Budget
- Leon Miller, Director of the Division of Information and Technology Services
- Raylene Ireland, Director of the Department of Administrative Services
- Steve Mecham, Chair of the Public Service Commission

- Steve Hess, Director of the Utah Education Network Steering Committee



<http://www.cio.state.ut.us/399/ueccindex.htm>

The Utah Electronic Commerce Council coordinates efforts by state government to use electronic commerce technologies and the Internet to deliver government services and accomplish the strategic goal of “moving government online.” This council was created by executive order and serves in an advisory role to the Governor and to the State Chief Information Officer. One of its key responsibilities is oversight of the contractual relationship between state government and Utah Interactive, Inc., the contracted vendor providing network management and development services for E-Utah. It is chaired by Alan Sherwood, State Electronic Commerce Coordinator.

- Al Sherwood, State Electronic Commerce Coordinator, Chair
- Amy Owen, Department of Community and Economic Development
- Brent Israelsen, Citizen’s Representative
- Chuck Larsen, Department of Administrative Services, Finance
- David Bascom, Citizen’s Representative
- David Moon, Governor’s Office, Chief Information Officer
- David Willis, Department of Commerce
- Douglas Thompson, Logan City
- Douglas Richins, Department of Administrative Services, Purchasing
- Harry Sutton, Department of Administrative Services, ITS
- Jeff Johnson, Department of Administrative Services, Archives
- Jerome Battle, Administrative Office of the Courts
- Ken Cowley, Citizen’s Representative
- Kerry Huntington, Department of Public Safety
- Leon Miller, Department of Administrative Services, ITS
- Raylene Miller, Department of Administrative Services, Executive Director
- Rick Leimbach, Utah State Tax Commission
- Thom Roberts, Legal Advisor
- Rebecca Whiting, Administrative Assistant

<http://www.le.state.ut.us/~itc/>



The Utah Information Technology Commission, established by statute 63D-1-101 UCA, develops and coordinates state information technology policy and reviews budget requests and expenditures. The Commission meets monthly, or as needed, to discuss state information technology policy and related issues or budgets, and approve or disapprove the items addressed. The Commission staff prepares legislation, upon request, for the Utah Legislature's General Session each year.

MEMBERS

The commission consists of twenty-one members including representatives from all three branches of government, the education community, local government, the information technology business sector, and the public. The Commission chairs are Senator David H. Steele and Representative Blake D. Chard.

- David H. Steele, Utah State Senate, Co-chair
- Blake D. Chard, Utah House of Representatives, Co-chair
- Scott Howell, Utah State Senate
- Robert Montgomery, Utah State Senate
- Brent Goodfellow, Utah State Senate
- David Zolman, Utah State Senate
- Cliff Ames, SmartUTAH
- Gerald Capps
- Ronald Fox, Public Affairs
- Peter Genereaux, Utah Information Technology Association
- Nancy Gibbs, Exchange Carriers of Utah
- Robert Hood, AT&T
- Garth Howard, Matrixx Marketing Inc.
- Eileen Longworth, Salt Lake County Library System
- Stephen Mecham, Public Service Commission
- Leon Miller, Division of Information Technology Services
- David Moon, Office of the Governor
- David Packer, Computerized Thermal Imaging, Inc.
- Mike Peterson, Board of Regents
- Jerry Peterson, State Office of Education
- Michael Wilkins, Court of Appeals

STAFF

- Richard North, Office of Legislative Research and General Counsel
- Tani Downing, Office of Legislative Research and General Counsel
- Junie Anderson, Office of Legislative Research and General Counsel

ACTIVITIES

- Electronic Commerce
- Electronic Government
- Privacy
- Information and Technology Budgets



<http://www.cio.state.ut.us/399/itoindex.htm>

The **Information Technology Managers Committee** meets monthly to discuss and coordinate operational issues common to IT managers across state departments and agencies. They identify opportunities for cooperation across multiple state agencies with respect to information technology resources and strategies. This committee is chaired by GaeLyn DeLand, Department of Corrections.

- Leon Miller, Dept. of Administrative Services
- Ken Gee, Dept. of Agriculture & Food
- Brad Brown, Dept. of Alcoholic Beverage Control
- David Lamb, Attorney General
- Dale Dillon, Utah State Auditor
- Jerry Fullmer, Board of Regents
- David Willis, Dept. of Commerce
- Michael Allred, Dept. of Community & Economic Development
- Gae Lyn DeLand, Dept. of Corrections
- Jerome Battle, Courts
- John Flagg, Office of Education
- Ken Elliot, Dept. of Environmental Quality
- Bruce Stewart, Dept. of Financial Institutions
- Dave Moon, Governor's Office

- Randy Fisher, Dept. of Health
- Brent Cleverly, Dept. of Human Resource Management
- Harry Sutton, Dept. of Human Services
- Carl Meek, Dept. of Insurance
- Bill Gerow, Labor Commission
- Mark Allred, Legislature
- Lloyd Johnson, Dept. of Natural Resources
- Roland Squire, Dept. of Public Safety
- Dewey Dipoma, Office of Rehabilitation
- Don Bradshaw, Utah Retirement Systems
- Jeff Roe, School & Institutional Trust Lands
- Kevin Van Ausdal, Utah State Tax Commission
- David Burton, Dept. of Transportation
- Robert Kirk, Utah State Treasurer
- Neil Cleverly, Utah Housing Agency
- Connie Laws, Dept. of Workforce Services



In addition to the above organizations and committees, the state coordinates closely with the following non-governmental and quasi-governmental entities which influence and promote use of information technology in government and education:

SmartUtah

SmartUtah is a non-profit-organization introduced by Governor Leavitt in 1994 to encourage cooperation between government, business, and the public in the area of technology. One of their main projects is to connect citizens and businesses to a Utah Intranet as well as to expand access to information age technology to all citizens.

Utah Electronic Law and Commerce Partnership

The UELCP is an initiative created to facilitate and promote the electronic practice of law and electronic commerce in Utah. It brings together the public and private sectors and the Utah State Bar. The goal of the UELCP is to provide electronic access to the State court system as well as State administrative and regulatory agencies.

Utah Education Network

The Utah Education Network is a collaborative statewide partnership of schools, colleges, universities, media, and private organizations whose purpose is to coordinate electronically delivered instruction and service. Its mission statement is to “Provide the citizens of Utah access to the highest quality, most effective instructional experiences, administrative support services, library services, student services, and teacher resources regardless of location or time.”

Current Technology Environment

SWOT Analysis

Strengths, Weaknesses, Opportunities, Threats

The SWOT analysis of 1998 was revisited by a working group of the ITPSC to revise the assessment of Utah's current information technology environment. The following summarizes this analysis:

Strengths

- General Citizenry and public-sector employees tend to be fairly fluent in technology - *Salt Lake City ranks first in the nation in the proportion of households with personal computers--nearly 65 percent*
 - Strong IT industry presence in state - *Over 2,400 IT business in Utah*
 - Well developed infrastructure—wide area network, and UEN EdNet and UtahLink infrastructures for delivering technology to schools
 - Effective e-mail and communication capability across state agencies
 - Utah citizens seem willing to embrace technology - *Utah ranks 4th highest in the nation in percent of households connected to the Internet*
 - Statewide governance structure exists for IT planning and management
 - Agencies have autonomy to develop and deploy needed applications
 - Overall competency of state IT personnel
 - Utah is recognized for its national leadership in information sharing and innovative systems development

Weaknesses

- Sharing of information and expertise across agencies needs to increase; little sharing of data or data tools
 - At times we have “over marketed” solutions long before they were ready to be deployed
 - Need more examples of applications that demonstrate the Governor's vision for technology
 - Difficult to keep pace with compensation requirements for IT workers; hard to attract and retain IT workers
 - 25% of all state IT employees are within five years of retirement
 - Traditional funding process impedes re-engineering business process and compromises potential benefits of IT
 - Little or no development of common data definitions for shared information across state systems
 - Technology and programs sometimes on different tracks when it comes to funding; difficult to engage in sharing and joint development activities without stifling progress
 - Lack of clarity between centrally done IT activities/projects and those requiring central coordination

- Heavy reliance on consultants and outside contractors
- Too little IT training for both technical and non-technical state workers
- Lack of line staff support in some cases for statewide integration initiatives
- Perceived misalignment between what Governor says about IT and what departments say and do
- Not enough understanding by legislators about IT issues
- There is no clear nexus between strategic business goals of departments and some of the IT products that they deliver. The connection between IT systems development and government business processes are unclear. We need to create good business cases for IT.

Opportunities

- Support rural Utah's strong desire to get connected
 - Increase level of IT systems integration between agencies that serve common customers
 - Regular state control and oversight on projects
 - Merge IT manager's perspectives with program manager perspectives
 - Develop and communicate priorities for IT initiatives across state.
 - Develop strategy for funding joint or statewide IT initiatives
 - Persuade Executive Appropriations Committee to make IT a top priority

Threats

In a rapidly changing business environment, agencies have a difficult time responding to these changes

- Technology and marketplace constantly in flux and moving rapidly
- Technology resources become obsolete before they are fully implemented or used
- Risk of stifling creativity if too much central control is exerted
- Movement of the State Office of Education away from the Novell standard has eroded the communications ability of the state and has added cost to managing the NDS directory
- Funding processes will drive separation instead of integration
- Technical biases of IT staff

Major Issues and Trends in Information Technology

Need for Engaged Leadership

The Harvard Policy Group on Network-Enabled Services and Government (HPG), Kennedy School of Government, report, “Eight Imperatives for Leaders in a Networked World,” identified guidelines to help government leaders develop an action agenda. “Each guideline is an imperative—something you as leaders must do...these eight imperatives form a useful framework for harvesting the benefits and avoiding the risks of the Information Age.

For the transition to electronic services:

1. Focus on how IT can reshape work and public sector strategies

Problem. The knowledge required to succeed with IT is complex and rapidly changing.

What to avoid. Don’t delegate all responsibility for technology to technologists, or focus on internal operations to the exclusion of externally oriented service improvements and building essential political support.

What to do. Learn how digital processing and communications are revolutionizing the work place and the nature of work... Focus on a) developing the organizational infrastructure and capacities you will need to function; b) adding value through network-enabled public services and regulations; and c) building support within your oversight community and the general public.

2. Use IT for strategic innovation, not simply tactical automation

Problem. The enormous potential benefits of IT are often compromised if it is used merely to entrench old work processes and organizations rather than to fundamentally redesign them.

What to avoid. Don’t focus on incremental improvements to the exclusion of more aggressive innovation.

What to do. Push for some strategic ten-fold improvements, and not merely for 10 percent.

3. Utilize best practices in implementing IT initiatives

Problem. The failure rate of IT initiatives has often been daunting, even though the most difficult problems have been political rather than technological.

What to avoid. Don’t approach IT as primarily a technology problem, and don’t delegate IT projects predominantly to technology specialists.

What to do. Recognize that technology implementations are usually change-management problems. Place general managers and politically capable leaders in charge of most major IT initiatives.

4. Improve budgeting and financing for promising IT initiatives

Problem. By focusing on incremental annual changes to existing programs, government budgeting makes it hard to invest in IT initiatives that offer high value but also require long-term, cross-agency innovation.

What to avoid. Don't rely too heavily on funding IT through the traditional tax-levy budget.

What to do. Analyze economic and budgetary trends to identify sources of financing appropriate for an increasingly electronic economy. Explore user charges...explore budget reforms to give greater emphasis to multi-year, cross-boundary service integration and innovation.

For emerging challenges to governance:

1. Protect privacy and security

Problem. As technology expands online communications, volatile issues of privacy and security require careful respect for individual rights and responsibilities in the context of maintaining community standards and safety.

What to avoid. Don't misunderstand privacy and security issues, either by ignoring them or by allowing their volatility to paralyze efforts to develop new electronic systems and services.

What to do. At minimum, understand and implement the "fair information practices" and the "secure information practices" developed over the past twenty-five years.

2. Form IT-related partnerships to stimulate economic development

Problem. While the biggest IT benefits often require cooperation across the boundaries that separate one agency from another and the government from the private sector, sustaining cooperation among diverse entities is almost always difficult.

What to avoid. Those who ignore cross-boundary opportunities—especially now that the Internet has greatly reduced the obstacles to network interoperability—make a major mistake.

What to do. Mobilize public and private stakeholders for a specific initiative, such as strengthening a regional economy and/or a particular industry.

3. Use IT to promote equal opportunity and healthy communities

Problem. Recent decades have produced increasing inequality in the distribution of income and political influence. A digital divide threatens to widen these inequalities and potentially destroy the social cohesiveness of geographically based communities

What to avoid. Don't try to duck these issues by assuming they're too unwieldy to remedy. At the other extreme, don't attempt massive fixes by trying to tax activities that can easily flee to low-tax jurisdictions.

What to do. Clarify what "universal service" could and should mean in a world of broadband digital networks. Judiciously develop the kinds of net-based education, job development, and community engagement that are becoming essential for economic and social success.

4. Prepare for digital democracy

Problem. Digital networking is expanding across regional and national boundaries to produce serious problems for policymaking and regulatory agencies. How should the governing values be determined and enforced.

What to avoid. Don't take an isolationist posture in response to growing problems of global interactions. And don't think of Information Age governance simply in terms of electronic voting."

What to do. Experiment to make online participation in "the conversation" of politics easier and also more meaningful. Develop initiatives to help legitimize digital communities and give stakeholders a role in setting standards and regulations.

Other Important Information Technology Issues and Trends

"Utah Technical Architecture Definition (January 2000) identifies major technology directions that will have an impact on how technology will be used in the state. Each trend statement also contains implications of the associated trend.

Trend #1: Rapid creation of new technologies will shorten useful technology life. The rapid rate of introduction of new technology will enable the state to meet new business needs more rapidly. At the same time the effects of this trend will shorten the useful life of the existing portfolio and could increase the total cost of ownership as products are changed.

Trend #2: The growth of Internet based commerce and the associated publicity will result in an increasing industry focus on security. New and useful security products are appearing and will continue to appear. Acceptance of the Internet as a place to do business will continue to increase with internal and external pressures on the state to conduct increasing amounts of business in this channel. More emphasis will be placed on encryption and authentication. Steve Adams, Sr VP Worldwide Marketing, Novell, Inc., speaking at the April UITA conference identified security as the #1 issue for small or large businesses.

Trend#3: Rapidly expanding use of Internet technology will be used to redesign and redefine business processes. State business partners and customers will begin to expect and demand interaction and support over the Internet. New opportunities to reduce cost and/or create value will appear. Internet transfers power to the consumer, thus consumer needs begin to drive business strategies.

Trend#4: The Internet will drive the technical standards for applications and network computing. There will be an increasing need to emphasize the use of Internet standards. The majority of new products, tools and approaches will be web and e-commerce focused. Web and Internet technologies will be pervasively used both inside and outside the organization. The browser will become the dominant interface for network applications. As these technologies continue to mature and become more

secure they will drive the interaction with other states, federal and local government, and trading partners.

Trend#5: There will be a shortage of qualified IT Staff. The general growth in new IT development has created a shortage of qualified IT personnel in specific areas and this will tend to drive up turnover rates and increase staffing costs.

Trend#6: The performance of computer hardware will continue to grow exponentially, while costs continue to decline dramatically. This advance in semiconductor technology, known as Moore's Law, has been validated by experience over the past three decades. Now the scope of these advances includes all of computing technology, e.g. memory, disk storage, communications. This trend enables the state to exploit the technology curve and to get better price performance and unit costs on purchased services. The state will be challenged to manage the rollover and support of products with shorter life cycles, the pervasive use of computers in business and operational equipment, and the growth in network demand.

Trend#7: The telecommunications market will continue to evolve rapidly technically and at varied rates politically. The network and telecommunications market is expected to continue to rapidly evolve and remain price competitive. The implications for the state are that demand will grow faster than the drop in unit costs, while gaps in our infrastructure will moderate our ability to exploit this trend.

Trend#8: The convergence of voice, data and video has begun and is accelerating. Opportunities will exist to reduce costs and streamline service, but proactive surveillance will be required to identify and apply new opportunities. An important opportunity will be the dramatic increase in wireless devices and wireless connectivity to the Internet.

Trend#9: New ways to connect to the computing environment are appearing. As the state gains control of the desktop, a new set of challenges and opportunities will present themselves in the form of PDA's, hand held computers, electronic books, digital scribes, multi-function mobile devices, and wearable computers. From a Civic.com (April 2000) article, "The initial industry goal of putting a computer on every desk has been extended to include a computer in every hand....That's really going to change the way people do their jobs in the future."

Trend#10: Application delivery will be increasingly component based. The increasing failure of traditional software development methods is producing fundamentally new techniques for the execution of IT projects. Buy versus build, component-based development is becoming increasingly important. Human and technical infrastructure will need to adapt to be capable of supporting systemic reuse. Hardware required for

projects will be over specified rather than spending resources on engineering labor for fine-tuning.

Trend #11: “Intelligence” oriented technologies are becoming increasingly available.

Flexible tools and approaches are appearing in some areas that will present new sets of business opportunities. Important intelligence tools are appearing in data warehousing, knowledge management, analysis tools, language translation, etc.

Trend#12: Market forces will tend to dominate over superior technology. Microsoft and Intel will dominate enterprise computing. UNIX will consolidate to three vendors and will be primarily server-side. Technology improvements will be incorporated into existing operating environments. Industry forecasts indicate the mainframe will diminish in relevance but will continue to be a large presence in the state, especially for large database applications.

Trend #13: High growth in data warehousing application and use. Organizations are moving towards total digitization of all forms of corporate data and the creation of enterprise wide data warehouses. Data management and data migration still present significant challenges. Ready access to large volumes of internal data will provide valuable guidance to organizational decision-makers. Knowledge management, search and retrieval, workflow and data visualization will gain in importance.

Trend#14: The drive for inter-connectivity and interoperability will blur traditional boundaries. The need for systems to share data across agency boundaries will increase. Use of general state infrastructure resources to support agency specific applications will increase in importance.

Trend#15: Networking performance and capacity is growing more rapidly than Moore’s law. Bandwidth that is currently constrained will soon be widely available. TCP/IP and Ethernet will be the dominant network protocols.

Trend#16: Collaborative computing environments are enabling organizations to better marshal and focus their intellectual resources. Multimedia collaboration tools are proliferating, as are tools for distributed, ad-hoc and communities of interest. More collaboration is taking place both inside and outside organizations.

Trend#17: Enterprises are using new technologies to reduce administration costs and establish a unified system management approach for corporate computing. There is a trend toward more centrally administered computing. Server-centric business operations, and increasing use of network and system management tools are reflective of an enterprise desire to reassert control over IT.

How Change Is Measuring Up

UITA Conference (April 2000) various speakers:

Internet growth: 150,000 new users/day, 4400 new web sites/day, 2 million new pages/day

Transmission speed for sending the 32 volume Encyclopedia Britannica: a 1200pbs modem- 28 days, ISDN-6.3 hours, T1-31 minutes, OC12-4.7 seconds.

“Wired,” May 2000: Sampling poll to reflect how important technology is in their lives:

31% “very wired” (people who use 4 or more of the following technologies: Internet, cellular or wireless phone, computer, fax, email, online banking or investing, online shopping)

43 % “somewhat wired” (use one of the technologies)

23% “not wired” (did not identify any single piece of technology as playing an “important part” in their lives)

In 1997 a similar survey showed 2% as “superconnected” (exchanged email at least 3 times/week and used a laptop, cell phone, beeper, and home computer; 7% were “connected” (used email along with 3 of the 4 technologies); and 62% were “semiconnected” (used email and at least one technology, usually cell phone)

@plan Internet Poll (March 2000): 85 percent of online users regarded the privacy of information transmitted online as the most important issue on the Internet; 41% rated equal access to the Internet for everyone as an extremely important issue

eGlobal March 2000 Report:

- US dominance of the Internet is slipping. The online population growth in Northern Europe, Asia, and Latin American will lead to a global melting pot in a few years.
- Latin America is poised for Internet growth
- Wireless devices are changing Internet markets
- B2B e-commerce continues to outpace B2C e-commerce in all countries. An important trend to watch over the next few years is the diffusion of the Internet from the largest multinational companies to small and medium enterprises.
- Logistics will make or break B2C e-commerce in the US and Europe and particularly in developing countries. For B2C e-commerce to grow businesses and governments will have to address unreliable postal services, fear of fraud, complex and costly tariffs and a host of other “real world” obstacles.

Key Findings Technology: 50 percent of companies with 10 or more employees have a web site.

Harvard Policy Group, “Eight Imperatives for Leaders in a Networked World”, March 2000:

-Over the past decade, the portion of new capital investment devoted to information technologies has risen from under 10 percent to over 50 percent, making it the largest category of capital investment in the US economy by far.

-Banking transactions over the Internet cost only about 3 percent of those at traditional walk-in counters, suggesting the huge productivity gains possible from delivering services over computer networks.

BizRate.com: e-commerce retail business over the Christmas 1999 season totaled \$3.17 billion on 33.9 million orders. Their comparable retail business number for 1998 was \$730 million .

The Information Technology Association of American (ITAA) study “Bridging the Gap: IT Skills for a new Millennium,” April 2000:

Study found an IT workforce of over 10 million individuals and a demand for approximately 1.6 million new workers over the next 12 months. Hiring managers foresee a shortfall of almost 850,000 appropriately skilled workers.

Workers with web-related skills are now the target of 13 percent of all IT hiring.

Nielsen Rating (April 9, 2000): Total home Internet usage for the US-14.4 million hours online, average time spent per week-over 3 hours; average time spend during surfing session-30 minutes.